

CLAIMS

What is claimed is:

- 1 1. A network comprising:
 - 2 a plurality of network nodes;
 - 3 a plurality of routing devices to route network traffics between selected ones
 - 4 of said network nodes; and
 - 5 a director coupled to said routing devices to determine whether selected
 - 6 instances of source addresses of packets routed by said routing devices are spoof
 - 7 source addresses, based at least in part on one or more consistency measures.
- 1 2. The network of claim 1, wherein the director bases said determination on at
- 2 least spatial distribution profiles of said source addresses, and in view of at least
- 3 one reference source address spatial distribution profile.
- 1 3. The network of claim 2, wherein said at least one reference source address
- 2 spatial distribution profile comprises at least a selected one of an exemplary spatial
- 3 distribution profile for a non-spoof source address in general, and a historical spatial
- 4 distribution profile for a particular source address.
- 1 4. The network of claim 1, wherein the director bases said determination on at
- 2 least destination source address range (DSAR) distribution profiles of said source
- 3 addresses, and in view of at least one reference DSAR distribution profile.

1 5. The network of claim 4, wherein said at least one reference DSAR distribution
2 profile comprises at least a selected one of an exemplary DSAR distribution profile
3 for a non-spoof source address in general, and a historical DSAR distribution profile
4 for a particular source address.

1 6. The network of claim 1, wherein the director bases said determination on at
2 least migration distribution profiles of said source addresses, and in view of at least
3 one reference migration distribution profile.

1 7. The network of claim 6, wherein said at least one reference migration
2 distribution profile comprises at least a selected one of an exemplary migration
3 distribution profile for a non-spoof source address in general, and a historical
4 migration distribution profile for a particular source address.

1 8. The network of claim 1, wherein the director bases said determination on at
2 least timing distribution profiles of said source addresses, and in view of at least one
3 reference source address timing distribution profile.

1 9. The network of claim 8, wherein said at least one reference source address
2 timing distribution profile comprises at least a selected one of an exemplary timing
3 distribution profile for a non-spoof source address in general, and a historical timing
4 distribution profile for a particular source address.

1 10. The network of claim 1, wherein the director is further equipped to determine
2 whether filtering actions are to be taken to filter out packets with source addresses

3 having instances deemed to be spoof source addresses, and if filtering actions are
4 to taken, where among said routing devices, said filtering actions are to be taken.

1 11. The network of claim 10, wherein the director takes into consideration in
2 making said where determination, where packets of non-spoof instances of a source
3 address having instances deemed to be spoof source addresses are likely to be
4 routed in said network.

1 12. The network of claim 1, wherein the director comprises a plurality of director
2 devices cooperatively coupled to each other to jointly make said determination.

1 13. The network of claim 1, wherein the network further comprises a plurality of
2 sensors, either integrally disposed in a subset of said routing devices or externally
3 disposed and coupled to the subset of routing devices, to monitor and report on
4 source addresses of packets routed through the subset of routing devices.

1 14. The network of claim 13, wherein the sensors are further equipped to
2 facilitate application of desired source address based filtering on packets being
3 routed through selected ones of said subset of routing devices.

1 15. A networking method comprising:
2 receiving information associated with source addresses of packets being
3 routed to and from a plurality of network nodes of a network;
4 determining whether selected instances of said source addresses are spoof
5 instances of said source addresses, based at least in part on one or more
6 consistency measures; and

7 managing said network based at least in part on the results of said
8 determination.

1 16. The method of claim 15, wherein said determination is made based at least in
2 part on spatial distribution profiles of said source addresses, and in view of at least
3 one reference source address spatial distribution profile.

1 17. The method of claim 16, wherein said determining comprises constructing
2 said spatial distribution profiles of said source addresses.

1 18. The method of claim 16, wherein said determining comprises determining
2 whether each of the spatial distribution profiles of the source addresses is within a
3 resemblance tolerance limit when compared to each of the at least one reference
4 source address spatial distribution profile.

1 19. The method of claim 16, wherein said at least one reference spatial
2 distribution profile comprises at least a selected one of an exemplary spatial
3 distribution profile for a non-spoof source address in general, and a historical spatial
4 distribution profile for a particular source address.

1 20. The method of claim 15, wherein said determination is made based at least in
2 part on destination source address range (DSAR) distribution profiles of said source
3 addresses, and in view of at least one reference DSAR distribution profile.

1 21. The method of claim 20, wherein said determining comprises constructing
2 said DSAR distribution profiles of said source addresses.

1 22. The method of claim 20, wherein said determining comprises determining
2 whether each of the DSAR distribution profiles of the source addresses is within a
3 resemblance tolerance limit when compared to each of the at least one reference
4 source address DSAR distribution profile.

1 23. The method of claim 20, wherein said at least one reference DSAR
2 distribution profile comprises at least a selected one of an exemplary DSAR
3 distribution profile for a non-spoof source address in general, and a historical DSAR
4 distribution profile for a particular source address.

1 24. The method of claim 15, wherein said determination is made based at least in
2 part on migration distribution profiles of said source addresses, and in view of at
3 least one reference migration distribution profile.

1 25. The method of claim 24, wherein said determining comprises constructing
2 said migration distribution profiles of said source addresses.

1 26. The method of claim 24, wherein said determining comprises determining
2 whether each of the migration distribution profiles of the source addresses is within
3 a resemblance tolerance limit when compared to each of the at least one reference
4 source address migration distribution profile.

1 27. The method of claim 24, wherein said at least one reference migration
2 distribution profile comprises at least a selected one of an exemplary migration

3 distribution profile for a non-spoof source address in general, and a historical
4 migration distribution profile for a particular source address.

1 28. The method of claim 15, wherein said determination is made based on at
2 least timing distribution profiles of said source addresses, and in view of at least one
3 reference source address timing distribution profile.

1 29. The method of claim 28, wherein said determining comprises constructing
2 said timing distribution profiles of said source addresses.

1 30. The method of claim 28, wherein said determining comprises determining
2 whether each of the timing distribution profiles of the source addresses is within a
3 resemblance tolerance limit when compared to each of the at least one reference
4 source address timing distribution profile.

1 31. The method of claim 28, wherein said at least one reference timing
2 distribution profile comprises at least a selected one of an exemplary timing
3 distribution profile for a non-spoof source address in general, and a historical timing
4 distribution profile for a particular source address.

1 32. The method of claim 15, wherein said managing comprises determining
2 whether filtering actions are to be taken in said network to filter out at least some
3 packets having source addresses deemed to be having spoof instances, and if
4 filtering actions are to be taken, where among a plurality of routing devices, said
5 filtering actions are to be taken.

1 33. The method of claim 32, wherein said where determination comprises taking
2 into consideration where packets of non-spoof instances of a source address having
3 instances deemed to be spoof source addresses are likely to be routed in said
4 network.

1 34. An apparatus comprising:
2 (a) a storage medium having stored therein a plurality of programming
3 instructions designed to implement a director to receive reporting of information
4 associated with source addresses of packets routed through a plurality of routing
5 devices of a network, and to determine whether at least some instances of said
6 source addresses are spoof instances; and
7 (b) a processor coupled the storage medium to execute the programming
8 instructions.

1 35. The apparatus of claim 34, wherein said programming instructions are
2 designed to make said determination based on at least spatial distribution profiles of
3 said source addresses, and in view of at least one reference source address spatial
4 distribution profile.

1 36. The apparatus of claim 35, wherein said programming instructions are
2 designed to be able to construct said spatial distribution profiles of said source
3 addresses.

1 37. The apparatus of claim 35, wherein said programming instructions are
2 designed to be able to determine whether each of the spatial distribution profiles of

3 the source addresses is within a resemblance tolerance limit when compared to
4 each of the at least one reference source address spatial distribution profile.

1 38. The apparatus of claim 34, wherein said programming instructions are
2 designed to make said determination based on at least destination source address
3 range (DSAR) distribution profiles of said source addresses, and in view of at least
4 one reference source address DSAR distribution profile.

1 39. The apparatus of claim 38, wherein said programming instructions are
2 designed to be able to construct said DSAR distribution profiles of said source
3 addresses.

1 40. The apparatus of claim 38, wherein said programming instructions are
2 designed to be able to determine whether each of the DSAR distribution profiles of
3 the source addresses is within a resemblance tolerance limit when compared to
4 each of the at least one reference source address DSAR distribution profile.

1 41. The apparatus of claim 34, wherein said programming instructions are
2 designed to make said determination based on at least migration distribution profiles
3 of said source addresses, and in view of at least one reference source address
4 migration distribution profile.

1 42. The apparatus of claim 41, wherein said programming instructions are
2 designed to be able to construct said migration distribution profiles of said source
3 addresses.

1 43. The apparatus of claim 41, wherein said programming instructions are
2 designed to be able to determine whether each of the migration distribution profiles
3 of the source addresses is within a resemblance tolerance limit when compared to
4 each of the at least one reference source address migration distribution profile.

1 44. The apparatus of claim 34, wherein said programming instructions are
2 designed to make said determination based on at least timing distribution profiles of
3 said source addresses, and in view of at least one reference source address timing
4 distribution profile.

1 45. The apparatus of claim 44, wherein said programming instructions are
2 designed to be able to construct said timing distribution profiles of said source
3 addresses.

1 46. The apparatus of claim 44, wherein said programming instructions are
2 designed to be able to determine whether each of the timing distribution profiles of
3 the source addresses is within a resemblance tolerance limit when compared to
4 each of the at least one reference source address timing distribution profile.

1 47. The apparatus of claim 34, wherein said programming instructions are
2 designed to be able to determine whether filtering actions are to be taken in said
3 network to filter out at least some packets having source addresses deemed to be
4 having spoof instances, and if filtering actions are to be taken, further determine
5 where among a plurality of routing devices, said filtering actions are to be taken.

1 48. The apparatus of claim 47, wherein said programming instructions are
2 designed to take into consideration where packets of non-spoof instances of a
3 source address having instances deemed to be spoof source addresses are likely to
4 be routed in said network, when making said where determination.

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